

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>A.86431A PEJ</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 03/03649</b>	International filing date (day/month/year) <b>20/08/2003</b>	(Earliest) Priority Date (day/month/year) <b>20/08/2002</b>
Applicant  <b>OXONICA LIMITED</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 7 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

P B 03/03649

CLASSIFICATION OF SUBJECT MATTER

C 7 C09K11/78 C09K11/67 C09K11/68 C09K11/69 C09K11/82

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C09K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, INSPEC, PAJ, IBM-TDB, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 881 941 A (KERNOHAN JOHN A) 6 May 1975 (1975-05-06)  the whole document	1-5, 11-16, 21-25,27
X	EP 0 363 977 A (EASTMAN KODAK CO) 18 April 1990 (1990-04-18) the whole document  ----- -/--	1,4



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

6 February 2004

Date of mailing of the international search report

11 02 2004

Name and mailing address of the ISA

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(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>WANG J ET AL: "Luminescence properties of LB films based on heteropolytungstate of rare earth"</p> <p>MATERIALS SCIENCE AND ENGINEERING B, ELSEVIER SEQUOIA, LAUSANNE, CH, vol. 97, no. 1, 15 January 2003 (2003-01-15), pages 83-86, XP004399819</p> <p>ISSN: 0921-5107</p> <p>pages 83-86</p> <p>-----</p>	1-5, 11-16
P,X	<p>WANG J ET AL: "Langmuir-Blodgett films based on europium-substituted heteropolytungstate and their luminescence properties"</p> <p>JOURNAL OF LUMINESCENCE, AMSTERDAM, NL, vol. 101, no. 1-2, January 2003 (2003-01), pages 63-70, XP004398333</p> <p>ISSN: 0022-2313</p> <p>pages 63-70</p> <p>-----</p>	1-8, 11-15
P,X	<p>WANG J ET AL: "Luminescent self-assembled thin films based on rare earth-heteropolytungstate"</p> <p>MATERIALS LETTERS, NORTH HOLLAND PUBLISHING COMPANY, AMSTERDAM, NL, vol. 57, no. 5-6, January 2003 (2003-01), pages 1210-1214, XP004399990</p> <p>ISSN: 0167-577X</p> <p>page 1210 - page 1214</p> <p>-----</p>	1-5, 11-16
A	<p>WANG J ET AL: "Study on highly ordered luminescent Langmuir-Blodgett films of heteropolytungstate complexes containing lanthanide"</p> <p>PREPARATION AND CHARACTERIZATION, ELSEVIER SEQUOIA, NL, vol. 415, no. 1-2, 1 August 2002 (2002-08-01), pages 242-247, XP004380245</p> <p>ISSN: 0040-6090</p> <p>pages 242-247</p> <p>-----</p>	1-5, 11-16
X	<p>WANG J ET AL: "Effective energy transfer and luminescence of LB films based on europium-substituted heteropolytungstate"</p> <p>PREPARATION AND CHARACTERIZATION, ELSEVIER SEQUOIA, NL, vol. 414, no. 2, 22 July 2002 (2002-07-22), pages 256-261, XP004375010</p> <p>ISSN: 0040-6090</p> <p>pages 256-261</p> <p>-----</p> <p>-/--</p>	1-8, 11-15

(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KUBOTA S-I ET AL: "Luminescence properties of Gd <sub>1-x</sub> BixTa <sub>7019</sub> (0<x=<1)" JOURNAL OF ALLOYS AND COMPOUNDS, ELSEVIER SEQUOIA, LAUSANNE, CH, vol. 281, no. 2, 18 December 1998 (1998-12-18), pages 181-185, XP004182319 ISSN: 0925-8388 pages 181-185	1,4,6,7, 11-13
X	----- KUBOTA S-I ET AL: "Luminescence properties of rare earth ions in polytantalate" JOURNAL OF ALLOYS AND COMPOUNDS, ELSEVIER SEQUOIA, LAUSANNE, CH, vol. 275-277, 24 July 1998 (1998-07-24), pages 746-749, XP004183994 ISSN: 0925-8388 pages 746-749	1-4
A	----- DATABASE WPI Section Ch, Week 199812 Derwent Publications Ltd., London, GB; Class L03, AN 1998-129160 XP002260487 & SU 1 506 819 A (AS USSR URALS CHEM INST) 20 April 1997 (1997-04-20) abstract	1-4
X	----- DATABASE INSPEC [Online] THE INSTITUTION OF ELECTRICAL ENGINEERS, STEVENAGE, GB; 1972, FORMAN R A ET AL: "Optical spectroscopy of some chromium heteropolymolybdate salts" XP002260484 Database accession no. 570294 abstract & 11TH EUROPEAN CONGRESS ON MOLECULAR SPECTROSCOPY (ABSTRACTS ONLY RECEIVED), TALLINN, USSR, 28 MAY-1 JUNE 1973, 1972, page 1 pp., 1972, Tallinn, USSR, Acad. Sci., Estonian SSR, USSR	1,2,4,5, 11,14-16
P,X	----- WANG J ET AL: "Luminescence properties of rare earth-polyoxometalate thin film deposited by sol-gel process" MATERIALS LETTERS, NORTH HOLLAND PUBLISHING COMPANY, AMSTERDAM, NL, vol. 56, no. 3, October 2002 (2002-10), pages 300-304, XP004387846 ISSN: 0167-577X pages 300-304	1-5, 11-16
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(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	XU L ET AL: "Preparation, characterization and luminescence properties of ultrathin films containing polyoxometalates" MATERIALS LETTERS, NORTH HOLLAND PUBLISHING COMPANY. AMSTERDAM, NL, vol. 54, no. 5-6, June 2002 (2002-06), pages 452-457, XP004354290 ISSN: 0167-577X pages 452-457	1-8, 11-15
X	----- LIS S ET AL: "Spectroscopic studies of Eu(III) and Nd(III) complexes with several polyoxometalates" JOURNAL OF ALLOYS AND COMPOUNDS, ELSEVIER SEQUOIA, LAUSANNE, CH, vol. 300-301, April 2000 (2000-04), pages 370-376, XP004192564 ISSN: 0925-8388 pages 370-376	1-16
X	----- LIS S: "Applications of spectroscopic methods in studies of polyoxometalates and their complexes with lanthanide(III) ions" JOURNAL OF ALLOYS AND COMPOUNDS, ELSEVIER SEQUOIA, LAUSANNE, CH, vol. 300-301, April 2000 (2000-04), pages 88-94, XP004192521 ISSN: 0925-8388 pages 88-94	1-9, 11-16
X	----- ANTONIO M R ET AL: "Coordination and valence of europium in [Eu(alpha-2-As2W17O61)2]<17-> and [Eu(W5O18)2]<9->" JOURNAL OF ALLOYS AND COMPOUNDS, ELSEVIER SEQUOIA, LAUSANNE, CH, vol. 275-277, 24 July 1998 (1998-07-24), pages 827-830, XP004184013 ISSN: 0925-8388 pages 827-830	1-8, 11-16
X	----- YAMASE T ET AL: "ELECTROLUMINESCENCE CELL BASED ON POLYOXOMETALATES PULSED ELECTRIC FIELD-INDUCED LUMINESCENCE OF DECATUNGSTOEUROPATE LAYERS" JOURNAL OF THE ELECTROCHEMICAL SOCIETY, ELECTROCHEMICAL SOCIETY. MANCHESTER, NEW HAMPSHIRE, US, vol. 140, no. 8, 1 August 1993 (1993-08-01), pages 2378-2384, XP000403634 ISSN: 0013-4651 page 2378 - page 2384 ----- -/--	1-8, 11-16,28

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Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE INSPEC [Online] THE INSTITUTION OF ELECTRICAL ENGINEERS, STEVENAGE, GB; 1998, LIS S ET AL: "Spectroscopic characterisation of luminescent Eu(III)/polyoxometalate sandwiched and encrypted complexes" XP002260485 Database accession no. 6435118 abstract &amp; RARE EARTHS'98. INTERNATIONAL CONFERENCE, FREMANTLE, WA, USA, 25-30 OCT. 1998, vol. 315-317, 1998, pages 431-438, Mater. Sci. Forum (Switzerland), Materials Science Forum, 1999, Trans Tech Publications, Switzerland ISSN: 0255-5476</p> <p>-----</p>	1-16
P,X	<p>DATABASE INSPEC [Online] THE INSTITUTION OF ELECTRICAL ENGINEERS, STEVENAGE, GB; 15 January 2003 (2003-01-15), LIN XU ET AL: "Preparation and characterization of photoluminescent ultrathin films based on polyoxometalates" XP002260486 Database accession no. 7485574 abstract</p> <p>-----</p>	1-16

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 03/03649

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3881941	A	06-05-1975	DE 2446433 A1	10-04-1975
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